

ABSTRACT

While a biped walking mobile body is in a motion, including level-ground walking, the position of the center of gravity (G<sub>0</sub>) of the biped walking mobile body, the position of an ankle joint (12) of each leg (2), and the position of a metatarsophalangeal joint (13a) of a foot (13) are successively grasped, and the horizontal position of a floor reaction force acting point of the leg (2) in contact with the ground is estimated on the basis of the relative positional relationship among the aforesaid positions. Depending on whether the center of gravity (G<sub>0</sub>) is behind the ankle joint (12), between the ankle joint (12) and the metatarsophalangeal joint (13a), or before the metatarsophalangeal joint (13a) with respect to the advancing direction of the biped walking mobile body, the horizontal position of the ankle joint (12), the center of gravity (G<sub>0</sub>), or the metatarsophalangeal joint (13a) is defined as the horizontal position of a floor reaction force acting point. The vertical position of the floor reaction force acting point is estimated on the basis of the vertical distance from the ankle joint (12) to a ground contact surface.